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ABSTRACT

According to an initial study of finance equity in Georgia, the dominant cause of differences in resource indices among school districts was differences in teacher salaries. Building on two other studies in Milwaukee County (Wisconsin) and Florida that explored factors determining teacher salaries, the Georgia study was replicated, using complete 1988-89 data. In addition, the measure of revenue generating potential was simplified to include only the local property wealth per full-time pupil. The null hypothesis, that there was no statistically significant difference in the property wealth per FTE (full-time equivalent) pupil between districts paying teacher salaries higher than predicted (from the mean salaries of teachers in neighboring districts) and those paying teacher salaries lower than predicted, was tested at eight points correlating various combinations of educational attainment and experience levels. Based on regression equations for predicting local teacher salaries and on property wealth comparisons, the null hypothesis was rejected for each of the eight salary points. Results show that if salaries in contiguous districts are raised, the salaries in adjoining districts will also be raised. Also, the degree and experience level that superintendents considered most important when setting salaries is not always the beginning bachelor degree level. (32 references) (MLH)

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DISTRICT PROPERTY WEALTH AND TEACHERS' SALARIES IN GEORGIA

A. Dwight Watt, Kenneth M. Matthews, and C. Thomas Holmes

Background for the Study

The impetus for this piece began with an investigation of the impact of differences in the cost of educational resources among districts on finance equity in Georgia.[1] The results of this initial study showed that substantial variations existed in the prices paid for educational resources among Georgia school districts.[2] In this same study it was also found that the dominant cause of differences in resource indices was differences in the salaries paid to teachers.[3] Of the several variables considered in an attempt to identify causes of the differences in teachers' salaries, only local per capita personal income had a statistically significant independent relationship with teachers' salaries.[4] In fact, variations in local per capita personal income accounted for more than fifty percent of the variations in local teachers' salaries. Matthews concluded that per capita personal income could possibly be considered a reflection of the local cost of living.[5]

Chambers argued against using a cost-of-living index to help compute salaries. According to him, "the cost of living and the cost of education, while related to one another, are not the same thing."[6]. The cost of living, he stated, is just part in the "location and work decisions which affect the supply, and hence the salaries, of school personnel."[7]

Chambers stated that costs of education are the amounts spent to obtain a certain level of educational services, or "to provide any given number of students with the same combinations and kinds of school inputs."[8] The kinds of school inputs he discussed included such considerations as number of teachers, level of transportation, and energy services (such as heating and cooling). Therefore, he stated, a school district could take the various school inputs and price out a standard market basket of resources for schools as the Bureau of Labor Statistics has for the public.[9] The key element in determining cost of education indices is the identification of the factors involved in determining teacher salaries.

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The Milwaukee Study

According to Gerwin, traditional wage determination theory has held that the wage rate and the revenue of the product of labor drift to equilibrium. He indicated this type of approach can be applied to private enterprise where there is a wage rate and a dollar rate can easily be assigned to the product. Gerwin suggested several reasons why this approach cannot be used with teachers. One issue is that there is typically not a product price, i.e., it is not known what the product price of an education is. A second issue he raised was that there is no physical product of labor. By this he meant that one cannot readily measure what an education is. Gerwin held that because of the above two issues "...institutional factors and political influences seem to play more fundamental roles in the public sector than they do in the private."[10]

Gerwin conducted a study from 1959 to 1969 of Milwaukee and its suburbs. The goal was to develop a model explaining how school districts determined pay scales. The study was conducted on just one element in the salary schedules, the salary for the beginning teacher with a bachelor's degree.[11] The beginning bachelor's degree teacher was chosen for two reasons. First, administrators considered it important because of its role in recruiting new teachers. Second, teachers considered it important because when the beginning bachelor's degree teacher got a raise, all other teachers tended to also receive a raise.[12] Gerwin elected to use, as a comparison to Milwaukee City, 6 of the 18 suburban school districts also located in Milwaukee County. The six districts chosen were all located on the north side of Milwaukee and were small, wealthy districts that tended to support high-cost education.[13]

Superintendents and board members were questioned to learn which factor was most influential in setting their salaries. The most important factor was the beginning bachelor's degree teachers' salaries in Milwaukee and the six northern districts. Other items mentioned were "school board composition, cost of living (national and Milwaukee), number of teachers hired, (and) decisions on other parts of the compensation package."[14] The respondents indicated that the more important factors were the salaries of those districts establishing salary schedules for teachers before them and, most importantly, the highest and lowest salaries that had been settled to date. This range served as a guideline to the

first districts and was a firm guide to the last districts' setting salaries. Only once in the nine year study did the sixth or seventh settling district settle outside this range.[15]

Each of the districts had developed a unique area in which it chose to compete. One district decided to keep experienced teachers so it would maintain the salary for a beginning bachelor's degree teacher and move it back up to the average of its neighbors only when this salary fell to the lowest. Their emphasis was on the upper range of the pay scale. Another district established as its policy to be the leader in salaries for beginning bachelor's-degree teachers, and this district shifted its emphasis later to the middle of the pay scale to reflect the change of its teaching staff from beginning teachers to experienced teachers. A third district policy originally emphasized the salaries of teachers in the middle of the scale. They later emphasized developing pay scales from the middle to the upper ends of the pay scale.[16] A fourth district paid the average increase for beginning bachelor's-degree teachers if their salaries fell between the extremes on the range. If the district currently had the highest salary of the seven districts, then the district gave less than the average increase. If the district currently had the lowest salary for these teachers, then the district gave an increase that was larger than the average increase for the other districts.[17] A fifth district placed emphasis on paying teachers with master's degrees. Also it offered a dependency allotment to help attract male teachers. It changed policies during the study and began emphasizing bachelor's degree starting teachers. The sixth district policy was to stay in the middle of the salary ranges, except in later years when it decided to stay with this policy only when it paid salaries that were higher than those paid in Milwaukee.[18]

Gerwin's study showed all six districts used their neighboring districts as a basis of comparison and competition. Although they did not all choose to compete on the beginning bachelor's degree salary level, that the study was being conducted on, they did all use geographical considerations in determining salaries. In addition Gerwin concluded that local salary policies were also influenced by pressures from teachers, pressures from local citizens to keep taxes down and the need to recruit teachers.[19]

Local Revenue Potential, Geography, and Teachers' Salaries

Because local per capita personal income can be considered both as a reflection of local costs of living and as a source of revenue, a follow-up study was conducted in other metropolitan areas.[20] The results of this follow-up study showed that neither changes in local per capita personal income nor changes in local Consumer Price Indices were consistently related to changes in teachers' salaries in nineteen Standard Metropolitan Statistical Areas across the United States.[21] Because these results indicated that neither changes in local per capita personal income nor changes in local Consumer Price Indices were reliable predictors of changes in local teachers' salaries other studies were initiated.

Matthews and Holmes investigated the possibility that other factors were more potent in the determination of local teachers' salaries.[22] They considered the possibility that the "orbits of coercive comparison" described by Ross[23] have a strong influence on local salaries for teachers as they do on salaries in other occupations. Using the concept of "key rates for job clusters" described by Dunlop,[24] they focused on salaries paid to beginning teachers as the key salary rates for teachers in a study of teachers' salaries in Florida.

Matthews and Holmes found that the mean salary paid to beginning teachers in contiguous districts explained as much as 50% of the differences in beginning teachers' salaries in local districts in Florida.[25] This finding provides support for the concept of orbits of coercive comparison found by Gerwin having a significant impact on the process of setting teachers' salaries in other areas.

Matthews and Holmes also found that, after taking into consideration the mean salaries paid to beginning teachers in neighboring districts, the revenue generating potential of local districts appeared to influence the salaries paid. Specifically, they found those districts paying higher salaries than predicted from the salaries paid in contiguous districts also had statistically significantly higher revenue generating potential than those paying salaries lower than predicted.[26] However, in a follow-up study on teachers' salaries in Georgia the results were different.[27]

In the Georgia study statistically significant relationships were found between the mean salaries paid to beginning teachers in contiguous districts and the salaries paid to beginning teachers in

individual districts. However, those districts paying higher than predicted from the salaries of contiguous districts did not have statistically significant higher revenue generating potential than those paying lower than predicted.[28] The authors of this paper considered two reasons for the inconsistency between the findings from the Florida study and those from the Georgia study. One - the dynamics of salary deliberations may have differed between Florida and Georgia. Two - because not all the data were available for the Georgia study, the findings, based on incomplete data, may have been flawed. To test the credibility of these two reasons for inconsistency the study in Georgia was replicated for a more recent year using complete data and a simplified measure of local revenue generating potential. A description of this more recent Georgia study follows.

The Current Study

The Null Hypothesis

Because (1) the data from the Florida study indicated that districts paying higher salaries than predicted also had significantly more revenue generating potential than districts paying less than predicted and (2) the incomplete data from Georgia for the 1984 - 1985 school year (the most recent year examined) showed that districts paying higher than predicted did not have significantly more revenue generating potential than districts paying less than predicted, the Georgia study was replicated using complete data for the 1988 - 1989 school year.[29] In addition the measure of revenue generating potential was simplified. In the earlier Florida and Georgia studies revenue generating potential was defined as direct state aid per pupil plus potential revenue from local property taxes per pupil. The measure of local revenue generating potential used in the study reported here was simply the local property wealth per full-time equivalent pupil.

The null hypothesis was "There is no statistically significant difference in the property wealth per FTE pupil between districts paying teachers salaries higher than predicted from the mean salaries of teachers in neighboring districts and those paying teachers salaries lower than predicted."[30] The null hypothesis was tested at eight points: (1) Bachelor degree teachers with minimum experience, (2) Bachelor degree teachers with maximum experience, (3) Master degree teachers with minimum

experience, (4) Master degree teachers with maximum experience, (5) Specialist degree teachers with minimum experience, (6) Specialist degree teachers with maximum experience, (7) Doctor degree teachers with minimum experience, and (8) Doctor degree teachers with maximum experience.

Testing the Null Hypothesis

The first step in the statistical analyses was to develop regression equations for predicting local teachers' salaries. This was accomplished by computing the mean salary of contiguous districts for each of the 186 school districts in Georgia for each of the eight salary points and from these points developing eight regression equations. The correlations between the mean salaries for contiguous districts and the salaries in individual districts ranged from a low of .44 for Specialist degree teachers with maximum experience to .58 for Master degree teachers with minimum experience with all correlations being significant at the .005 level.

Table 1

Correlations of Local Salaries with Neighboring Salaries

Experience	Degree Bachelor	Master	Specialist	Doctor
Minimum	.54	.58	.45	.52
Maximum	.49	.47	.44	.49

The second step in the analysis was to compare the local property wealth per FTE pupil of those districts paying higher salaries than predicted from the regression equations with that of those paying lower salaries than predicted for each of the eight salary points. In each case the t test showed that the mean local property wealth per FTE pupil was significantly higher for those districts paying more than predicted than it was for those districts paying lower salaries than predicted. All the t values were significant beyond the .01 level. The data for Master degree teachers with minimum experience illustrate the extent of the differences for the salary points considered.

Mean Property Wealth per FTE Pupil of Districts Paying Less Than Predicted = $46,472

Mean Property Wealth per FTE Pupil of Districts Paying More Than Predicted = $62,747

Calculated t value = 3.38, $p < .001$

Therefore the null hypothesis was rejected for each of the eight salary points.

Conclusions

The Georgia data for the current study produced results consistent with the earlier study in Florida. Therefore, it is concluded that the earlier findings using incomplete data for Georgia should be replaced with the findings based on the more current data reported in this piece. Furthermore, the data in this piece are consistent with the propositions reported by Matthews and Holmes:

> Proposition One - If the salaries in contiguous districts are raised, the salaries in the adjoining district(s) will tend also to be raised.
>
> Proposition Two - If districts have greater revenue potential than the contiguous districts, they will tend to pay higher teachers' salaries than those districts that join them.[31]

However, the data are also consistent with a third proposition:

> Proposition Three - "If districts have greater revenue-generating potential than the contiguous districts, they may choose to spend more money in various ways, among which is to pay higher teachers' salaries."[32]

These three propositions form the basis for the beginnings of a theory of salary determination.

The analyses of the data also show that the degree and experience level that superintendents reported that they considered most important when setting salaries is not always the beginning bachelor degree level. As Table 2 shows, the most frequently mentioned level was that of the experienced master degree group of teachers. However no group was reported to be most important by a majority of the superintendents.

Table 2

Salary Positions Reported to be Most Important by Superintendents

Experience	Degree Bachelor	Master	Specialist	Doctor
Minimum	n=24	n=8	n=1	n=0
Maximum	n=11	n=41	n=6	n=9

In Georgia, the state sets a salary scale for all districts that is relatively high in comparison to the salaries actually paid. The salary required by the state is the actual salary paid in a number of districts.

Table 3 shows that 40 districts paid their beginning bachelor's degree teachers only the state required minimum salary, and that at least 28 districts reported paying no local supplement at each of the other levels. The pay required by the state may be above the minimum that some districts would pay if the scale was not established and could be creating an artificially high salary for some districts in Georgia. Table 3 also shows that at least 60 of the other districts reported paying a local supplement of $1000 or less at each of the levels examined.

Table 3

Local Supplements to the State Prescribed Minimum Salaries

	Districts with No Local Supplement	Districts with Local Supplement of $1000 or Less
Bachelor Minimum	n=40	n=94
Bachelor Maximum	n=29	n=81
Master Minimum	n=40	n=83
Master Maximum	n=28	n=67
Specialist Minimum	n=41	n=76
Specialist Maximum	n=28	n=61
Doctor Minimum	n=42	n=66
Doctor Maximum	n=29	n=60

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[27] K. M. Matthews and C. T. Holmes, "District Revenue Potential and Teachers' Salaries in Georgia," Journal of Education Finance 14 (Fall 1988): pp. 250-258.

[28] Ibid., p. 256.

[29] The authors are deeply indebted to Carvin L. Brown, Associate Dean for Services, the College of Education, the University of Georgia for his help in securing missing data.

[30] The following information was taken from A. D. Watt, "District Revenue Potential and Teachers' Salaries in Georgia," Ed.D. dissertation, University of Georgia, 1989.

[31] Matthews and Holmes, "Implications of Regional Cost Adjustments to School Finance Plans," op. cit. p. 85.

[32] Matthews and Holmes, "District Revenue Potential and Teachers Salaries in Georgia," op. cit. pp. 257-258.

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